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Loading space system for motor vehicles

5 The invention relates to a loading space system for
motor vehicles with a cover element which runs parallel
to a vehicle longitudinal axis and has two longitudinal
sides, two transverse sides running transversely
thereto and at least one first pivot hinge, and which
10 can be connected at least over part of the longitudinal
sides to a first bearing running approximately parallel
to a motor vehicle floor in the region of a motor
vehicle side wall, the first pivot hinge being arranged
parallel to the transverse side, and the cover element
15 being divided into a first cover part and a second
cover part.

G 84 02 098.9 U1 has already disclosed a loading space
covering which is formed from three foldably connected
20 parts. In this case, the loading space covering is
placed with its entire surface area approximately
parallel to the loading space floor onto supporting
profiles provided for it in the lateral region of the
loading space, or the parts are folded forward onto one
25 another correspondingly parallel to the loading space
floor.

The invention is based on the object of designing and
arranging a loading space with a cover element in such
30 a manner that a flexible loading space design is
ensured.

The object is achieved according to the invention by
the fact that at least the first cover part can be
35 connected approximately at right angles to the motor
vehicle floor to a motor vehicle side wall via a second
bearing and/or to the motor vehicle floor via a third
bearing. The effect achieved by this is that, in
addition to the horizontal covering, the loading space

may also be divided or partitioned off with respect to the vehicle longitudinal axis.

For this purpose, it is advantageous that the first 5 cover part can be pivoted relative to the second cover part, irrespective of the position thereof, through at least 180° , in particular through 270° or through 360° , between a first position A and a second position B. The two loading space parts formed by the cover part 10 arranged at right angles to the vehicle floor can therefore be partitioned off upward by the cover part not arranged at right angles. In addition, access to the loading space from the vehicle seat is ensured.

15 An additional possibility, according to a development, is for at least one cover part to have at least one second pivot hinge which is arranged parallel to the first pivot hinge and divides the cover part into at least a first cover piece and a second cover piece. The 20 division of the cover parts into at least two cover pieces ensures the handling, in particular with regard to the fastening to the third bearing arranged at right angles to the vehicle floor. The cover element formed in this manner can therefore be folded over and pivoted 25 into the desired position in the manner of segments by actuation of the particular pivot hinges.

Furthermore, it is advantageous that the cover pieces can be pivoted relative to each other through at least 30 180° , in particular 360° , via the second pivot hinge. The various cover pieces can therefore be brought to bear against one another so that the entire surface of the cover element is reduced in the desired manner.

35 It is also advantageous for this that the first and/or the second cover part is/are connected releaseably to a fourth bearing in the region of a vehicle seat wall. The use of a fourth bearing in the region of the vehicle seat wall ensures that a mechanical coupling of

the cover element to the tailgate will be strong. With the opening of the tailgate, the cover element is at least partially raised, at least in the region of the tailgate, by corresponding tensioning means, so that a
5 slipping of the put-away element due to the action of the tensioning means of the tailgate is prevented by the bearing in the region of the rear seat wall.

According to a preferred embodiment of the solution
10 according to the invention, provision is finally made for the first and/or the second cover part to be connectable to a fifth bearing in the region of a vehicle tailgate. The guiding or the bearing of the cover element in the region of the tailgate ensures an
15 optimum fit during operation.

For the present invention, it is of particular importance that the bearings are designed as supported bearings, sliding-fit bearings and/or clamping-fit
20 bearings. In this case, the supported bearing is designed as a step within the motor vehicle side wall, with the sliding-fit bearing being designed as a depression or groove within the motor vehicle side wall or within the motor vehicle floor. The various bearings
25 may optionally have spring means or pivot means which ensure that the cover element is clamped or locked in the respective bearing.

In conjunction with the design and arrangement
30 according to the invention, it is advantageous that the second bearing is arranged approximately centrally between the vehicle seat wall and the vehicle tailgate in the direction of the vehicle longitudinal axis and/or, starting from this central position, is
35 arranged in a manner such that it can be offset in the longitudinal direction with respect to the length of the cover piece. The use of further bearings arranged vertically to the vehicle floor ensures a variable

division of the loading space with respect to the motor vehicle longitudinal axis.

It is advantageous, furthermore, that the cover element
5 in the region of the motor vehicle floor and/or in the
region of the vehicle seat wall can be placed such that
it is approximately parallel and at least partially
rests on them. The cover element can therefore be
placed in the region of the vehicle seat wall or in the
10 region of the motor vehicle floor, with the result that
the entire loading space can be used.

In addition, it is advantageous that the cover element
can be connected in the region of the longitudinal
15 sides and the transverse sides to the particular
bearing. The connectability of the put-away element in
the region of the longitudinal sides and transverse
sides ensures that the available loading space is used
in every position of the cover element.

20 Furthermore, it is advantageous that the second
foldable cover part is connected pivotably to the first
foldable cover part and can be pivoted with respect to
the motor vehicle floor into a vertical position and
25 can be fixed there in the region of the motor vehicle
floor and/or in the region of the motor vehicle side
wall.

30 In addition to the right-angled arrangement of the
cover element with respect to the motor vehicle floor,
other angle dimensions differing therefrom are also
provided, so that that part of the loading space which
is to be partitioned off can be formed in accordance
35 with the items to be loaded. In this case, it is
possible, on the one hand, to provide correspondingly
arranged bearings in the region of the side wall or to
design these bearings or the second bearing in the
region of the motor vehicle side wall in an adjustable
or pivotable manner.

Further advantages and details of the invention are explained in the patent claims and in the description and are illustrated in the figures, in which:

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Fig. 1 shows a schematic diagram of the cover element in a horizontal position;

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Fig. 2 shows a schematic diagram of the cover element with a pivoted part;

Fig. 3 shows a schematic diagram of the cover element with a partially folded part;

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Fig. 4 shows a schematic diagram of the cover element with a vertically arranged part;

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Fig. 5 shows a schematic diagram of the cover element with a vertically arranged part in a pivoted position;

Fig. 6 shows a schematic diagram of the cover element with a vertically arranged part in a pivoted position.

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A cover element 1 illustrated in figure 1 is arranged adjoining a vehicle seat wall 7 of a vehicle seat row in a loading space of a passenger vehicle (not illustrated specifically). In this case, the loading space is bounded by a motor vehicle floor 6 and a motor vehicle side wall 5 and runs, corresponding to a vehicle longitudinal axis 9, from the vehicle seat wall 7 toward the rear or tailgate (not illustrated specifically).

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The cover element 1 here is of essentially rectangular design and has a first longitudinal side 3.1, a second longitudinal side 3.2 and a first and second transverse side 4.1, 4.2. The two longitudinal sides 3.1, 3.2 and

the two transverse sides 4.1, 4.2 are in each case arranged parallel to one another.

5 The cover element 1 is fastened in the region of the vehicle side wall 5 via a first bearing 8.1 according to figure 2 and therefore rests next to this first bearing 8.1 and the corresponding bearing (not illustrated in the figures) of the opposite side wall (not illustrated). In addition, the cover element 1 is
10 fastened in the region of the vehicle seat wall 7 via a fourth bearing 8.4 according to figure 5 to the latter by the transverse side 4.2.

15 In addition, the cover element 1 has a first pivot hinge 2.1 which divides the cover element 1 into a first cover part 1.1 and a second cover part 1.2. The two cover parts 1.1 and 1.2 are therefore connected pivotably to each other and, according to the following exemplary embodiments, can be pivoted independently of
20 each other between the various horizontal and vertical positions.

In addition to this first pivot hinge 2.1, each cover part 1.1, 1.2 has a second or third pivot hinge 2.2, 25 2.3 which divides the particular cover part 1.1, 1.2 into a first and second cover piece 1.1', 1.1'' and 1.2' and 1.2''.
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According to figure 2, the first cover part 1.1 rests 30 with the longitudinal side 3.1 on the first bearing 8.1 and is fastened in the region of the transverse side 4.2 to the vehicle seat wall 7 by the fourth bearing 8.4 (not illustrated specifically). In this case, the second cover part 1.2 is pivoted, starting from the 35 horizontal position, upward and forward relative to the first cover part 1.1.

According to figure 3, the second cover part 1.2 is pivoted, starting from figure 1, forward through a

further angle segment about the first pivot hinge 2.1. At the same time, the first cover piece 1.2' is pivoted relative to the second cover piece 1.2'' of the second cover part 1.2 about the second pivot hinge 2.2 in such 5 a manner that both undersides of the cover pieces 1.2', 1.2'' according to figure 2 come to bear against each other.

In the region of the motor vehicle side wall 5, there 10 is provided next to the first bearing 8.1, 8.1' a second bearing 8.2 which is arranged at right angles to the motor vehicle floor 6 and is intended for receiving the cover element 1 or cover part 1.2. In addition, a third bearing 8.3 is provided in the region of the 15 motor vehicle floor 6 at right angles to the motor vehicle side wall 5.

According to figure 4, the second cover part 1.2 is oriented vertically downward, at right angles to the 20 motor vehicle floor 6. The second cover part 1.2 is arranged here with the longitudinal side 3.1 on the second bearing 8.2 and with the transverse side 4.1 in the region of the third bearing 8.3 or can be connected to the third bearing 8.3. The cover element 1 formed in 25 this manner partitions off the available loading space according to figure 4 in the region behind the motor vehicle seat wall 7 in the manner of a box. In this case, the second bearing 8.2 is designed as a sliding bearing, with the third bearing 8.3 likewise having a 30 slot shape (not illustrated specifically) for the admission of the transverse side 4.1.

According to figure 5, the first cover part 1.1, starting from figure 4, is released from the fourth 35 bearing 8.4 and is at least partially pivoted to the rear about the first pivot hinge 2.1. The second cover part 1.2 remains standing in the vertical position.

According to figure 6, the loading space is partitioned off in the rear region in the longitudinal direction by means of the second cover part 1.2, which is arranged vertically to the motor vehicle floor 6, and upward by 5 means of the horizontally arranged, first cover part 1.1. Pivoting of the respective cover pieces 1.1', 1.1'' and folding them over enables the relevant cover part 1.1 to be reduced in its size.

10 In an exemplary embodiment (not illustrated), a plurality of vertically arranged bearings 8.1 - 8.4 are provided in accordance with the longitudinal directional or vehicle longitudinal axis 9, with the result that the respective cover part 1.1, 1.2 can be 15 fastened in various positions with respect to the vehicle longitudinal axis 9.